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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HONG, STEPHEN S

ART UNIT PAPER NUMBER

2178

DATE MAILED: 04/07/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/437,619

Applicant(s)

BIRSAN ET AL.

Examiner

Stephen S. Hong

Art Unit

2178

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-13, 15-21 and 23-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8-11, 13, 15-18, 23-26, 28-39 is/are rejected.
- 7) ☒ Claim(s) 4-6, 12, 19-21 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to communications: Amendment and RCE filed on January 15, 2004.
2. In the amendment, claims 31-39 have been added. Accordingly, claims 1-39 are pending in the case. Claims 1, 14-16, 29, 31 are independent claims.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 31 is rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter.

The claims are not directed to statutory subject matter because the claimed subject matter:

- (1) does not fall within one of the four statutory classes of inventions under 101; and/or
- (2) falls within the mere idea or abstract intellectual concept exception to 101; and/or
- (3) falls, by analogy, within the printed matter exception to 101.

Data structures do not fall within one of the four statutory classes of invention under 101: process, machine, manufacture, and composition of matter. A data structure is clearly neither a "process" nor a "machine." With regard to the other statutory classes, the Supreme Court in Diamond v. Chakrabarty, 206 USPQ 193 (S. Ct. 1980), has defined a "manufacture" as "the production of articles for use from raw

materials prepared by giving to these materials new forms, qualities, properties, or combinations whether by hand labor or by machinery" and has defined a "composition of matter" as "all compositions of two or more substances and ... all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders, or solids." Id. at 195-196. Clearly, a data structure, per se, cannot be considered a "manufacture" since a data structure is not produced from raw materials and has no tangible, physical form or structure. Likewise, a data structure cannot be considered a "composition of matter" since a data structure is not a composition of substances or composite articles as contemplated by the Supreme Court. Accordingly, since a data structure does not fall within one of the four statutory classes of inventions under 101, the claims are not directed toward statutory subject matter.

Secondly, even if the claims do somehow fall into one of the four statutory classes of inventions, the claims, as a whole, are merely directed toward an abstract idea or intellectual concept which is not patentable. See Diamond v. Diehr, 209 USPQ 1, 7 (S. Ct. 1981) ("Excluded from ... patent protection are ... abstract ideas."), Chakrabarty, 206 USPQ at 197 ("abstract ideas have been held not patentable"), Gottschalk v. Benson, 175 USPQ 673, 675 (S. Ct. 1972) ("abstract intellectual concepts are not patentable"). See also Parker v. Flook, 198 USPQ 193 (S. Ct. 1978). A data structure, in and of itself, is merely a collection of data filled with "mental meaning." Thus, a data structure constitutes merely an abstract idea or intellectual concept since a data structure itself is not capable of performing any task or useful function but rather relies on some machine, process, or manufacture in manipulating the data structure to warrant its having any actual utility. Accordingly, since the claims are deemed to be drawn toward an abstract intellectual idea or concept, they fail to present statutory

subject matter.

Lastly, a data structure is considered non-statutory subject matter by analogy to the "printed matter" exception under 101. See In re Miller, 164 USPQ 46, 49 (CCPA 1969). Like printed matter, a data structure, in and of itself, is merely an arrangement of data and nothing more. Furthermore, claims drawn to printed matter may be non-statutory even though the claims recite the structure on which the printed matter is printed:

The *mere arrangement* of printed matter on a sheet or sheets of paper, in book form or otherwise, does not constitute "any new and useful art, machine, manufacture, or composition of matter," or "any new and useful improvements thereof," as provided in section 4886, of the Revised Statutes [the predecessor to 35 U.S.C. 101].

(emphasis in original). In re Russell, 9 USPQ 181, 182 (CCPA 1931). At best, the claims as a whole describe a data structure stored in a computer system. Accordingly, like printed matter "stored" on a sheet of paper, a data structure stored in a computer system fails to present statutory subject matter.

With respect to claim 31, claimed limitations merely describe the structures of a data file, which merely are sets of data structures. See In re Warmerdam, 31 USPQ2d 1759.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 7-11, 13, 15-17, 22-26, and 28-30 remain and claims 32-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Percival et al (herein Percival; USPN 6226652 – filing date 9/5/1997) in view of Kramer (USPN 6216140 – filing date 9/17/1997) and in further view of Maslov (USPN 6466240 – filing date 4/2/1999, priority date 7/8/1998).

4. **Regarding independent claim 1**, Percival discloses comparing two different versions of files based by comparing elements of those files (abstract, Fig. 3; compare with “*comparing the...modified file;*”). Percival discloses combining the files for presentation to a user (col 1, ln 41-49; compare with “*providing...modified files;*”). The differences between the files are highlighted on a user interface (col 3, ln 59-62 and fig 3-9; compare with “*highlighting...modified files.*”).

Percival does not explicitly disclose providing a tree structure to a user. However, Kramer teaches the merging of hierarchies of items and the creation of difference lists to discover any discrepancies between versions. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the inventions of Percival and Kramer to be able to present the merged information being compared in a hierarchical format. Such a combination would have presented certain users with a graphical display more familiar to them, thereby making the invention easier to use.

Percival and Kramer do not explicitly disclose comparing elements of a structured file. However, Maslov teaches the display of a structured document in a hierarchical format, enabling a user to modify elements via a tree display. It would have

been obvious to one of ordinary skill in the art at the time of the invention to modify the teaching of Percival and Kramer to enable the comparison of structured documents and their display in tree structures. This modification would have given users a wider range of data to be able to compare, thereby increasing the user's ability to manage different versions of data.

5. **Regarding dependent claim 2**, Percival teaches resolving differences by selecting data or merging several data sources with selection and modification (abstract).

6. **Regarding dependent claim 7**, Maslov teaches the display of a tree structure (fig 1).

7. **Regarding dependent claim 8**, Maslov teaches displaying a tree structure of a structured document in one window and the document itself in an adjacent window (fig 1). However, Percival teaches displaying a number of different scenarios, including a split-merge view that displays both of the data versions adjacent to each other with an additional pane displaying merged data. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Maslov and Percival to display the different element versions in a split screen with the tree structure adjacent to the element panes. This would have given the user the ability to see all the data at once to better determine how differences ought to be resolved.

8. **Regarding dependent claim 9**, Maslov teaches displaying a tree structure and the base document where both panes are always synchronized (col 4, ln 31-42). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention discloses in the rejection of claim 8 in order to synchronize all three panes to display the appropriate selected element if it exists in each file. This would have enabled the user to better search and browse the versions and note differences between the two, thereby enabling the user to better determine how differences ought to be resolved.

9. **Regarding dependent claims 10 and 11**, the use of ID and name attributes associated with an element was known and typical at the time of the invention. ID and name attributes were known and typical in all arts dealing with data structures, these attributes being a simpler and more readable method of uniquely representing data. It would have been obvious to one of ordinary skill in the art at the time of the invention to use these known means to compare two elements. This would have provided a method that would have most likely been faster (comparing an ID instead of content) for comparisons.

10. **Regarding dependent claim 13**, the use of XML as a structured markup language was known and typical in the art at the time of the invention. The inclusion of XML in addition to the disclosed represented languages in Maslov (HTML, SGML;

abstract) would have been obvious to one of ordinary skill in the art at the time of the invention. This would have increased the breadth of the invention.

11. **Regarding independent claims 15 and 16**, the claims incorporate substantially similar subject matter as claim 1, and are rejected along the same rationale.

12. **Regarding dependent claims 17, 22-26 and 28**, the claims incorporate substantially similar subject matter as claims 2, 7-11, and 13, respectively, and are rejected along the same rationale.

13. **Regarding independent claim 29**, the claim incorporates substantially similar subject matter as claim 1, and is rejected along the same rationale. Percival, Kramer, and Maslov do not explicitly disclose the use of a parser to produce a parse tree output for subsequent comparing and merging. However, the use of a parser in Maslov's invention is inherently taught when transforming a structured text to a graphical tree. One of ordinary skill in the art at the time of the invention would have realized that a parser would have been necessary to transform the text of a structured document by placing elements of the document into the hierarchical nodes of a tree.

14. **Regarding dependent claim 30**, Maslov teaches displaying a tree structure (fig 1).

15. **Regarding claims 32-39**, Maslov teaches comparing information associated with at least one of the elements of the base file with information associated with at least one of the elements of the modified file; the information associated with the at least one of the elements of the base file identifies attributes of the at least one of the elements of the base file and at least one of the elements of the modified file identifies attributes of the at least one of the elements of the modified file, including identifying attributes of descendant element thereof (col.3, line 53 to col.4, line 12); the information associated with the at least one of the elements of the base file and the modified file comprises information encoded by the digest function (col.3, line 22, “efficiently copy and share large amounts...”); and identifying at least one of the elements of the base file and the modified file according to a user-customizable identify function (col.3, line 10, “a user – designed attribute...”). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the inventions of Percival and Kramer to be able to present the merged information being compared in a hierarchical format. Such a combination would have presented certain users with a graphical display more familiar to them, thereby making the invention easier to use.

Claims 3, 18, and 31 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Percival in view of Kramer and Maslov and in further view of Bloom (USPN 3711863 – filing date 1/21/1972).

16. **Regarding dependent claim 3**, Percival, Kramer, and Maslov do not explicitly disclose indicating if differences are new, changed, or removed. However, Bloom

teaches an invention for comparing files that determines and marks accordingly a section of data that is a deletion (removed), an addition (new), or a modification (changed; col 2, ln 1-13). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Percival, Kramer, and Maslov with the teaching of Bloom. Such a combination would have given a user a more conspicuous indication as to what difference results the invention found and would have made choosing the appropriate action to resolve the difference easier.

17. **Regarding dependent claim 18**, the claim incorporates substantially similar subject matter as claims 3, and is rejected along the same rationale.

18. **Regarding independent claim 31**, the claim incorporates substantially similar subject matter as claim 1, and the rejection of claim 1 is fully incorporated herein. Maslov teaches a hierarchical structure that contains a plurality of nodes, each node corresponding to an element of a structured document (abstract, fig 1). Percival, Kramer, and Maslov do not explicitly disclose indicating at each node if the node is new, changed, or removed. However, Bloom teaches an invention for comparing that determines and marks accordingly a section of data that is a deletion (removed), an addition (new), or a modification (changed; col 2, ln 1-13). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Percival, Kramer, and Maslov with the teaching of Bloom. Such a combination would

have given a user an easier indication as to what difference results the invention found and then choose the appropriate action to resolve the difference.

Allowable Subject Matter

Claims 4-6, 12, 19-21, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

19. Applicant's arguments filed 1/15/04 have been fully considered but are not persuasive.

In the amendment, Applicant asserts that "the combination of Percival, Kramer and Maslov would not lead one of ordinary skill in the art to the claimed invention since it is not clear how the display of Percival et al., which uses cross-hatching and the like to denote collisions, could be incorporated into a tree structure as claimed." In response to applicant's argument, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the Kramer and Maslov teach the

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comparison of the hierarchical structured data and recognize the difference after the comparison. The prior art of Percival is used to point out that the technique of visually displaying the differences by highlight was well known in the art. Given the teaching, it is clear a person of ordinary skill would be able to apply the Percival's technique to display the differences in the hierarchical structures of Kramer and Maslov.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan D Stone whose telephone number is (703) 305-7854. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather R Herndon can be reached on (703) 308-5186. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications. Responses to this action may be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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Hand-delivered responses should be brought to:

Crystal Park II, 2121 Crystal Drive
Arlington, VA, Fourth Floor (receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

JDS
April 5, 2004

A handwritten signature in black ink, appearing to read 'S. Hong', with a long horizontal stroke extending to the right.

STEPHEN S. HONG
PRIMARY EXAMINER